In addition to other components (not shown) the media gateway MG has a multiplexer MUX by means of which TDM data is distributed to a plurality of TDM/IP converters TDM/IP. These converters are connected to the Ethernet switches ES0, ES1 via internal connections of the media gateway MG. As already described, one of the duplicated Ethernet switches ES0, ES1 is active, the other inactive. In the example shown, the first Ethernet switch ES0 is active and the second Ethernet switch ES1 is inactive or in standby mode. Further elements (not shown) of the media gateway MG can also be duplicated in order to increase the failure safety of the media gateway MG. The set of active elements is referred to as the 'active half', as already mentioned, the set of inactive elements being referred to as the 'inactive half'. If an active element fails, the assigned inactive element is activated automatically or further to control by means of administrative intervention and assumes the role of the hitherto active element.

Figure 2 shows an exemplary embodiment of the inventive interfacing of a media gateway MG with the IP network IP. Four interface units IF0, IF1, IF2, IF3 which are components of the media gateway MG, are connected to both the active Ethernet switch ES0 and the inactive Ethernet switch ES1, via internal connections of the media gateway MG. Each interface unit IF0, IF1, IF2, IF3 is assigned precisely one connection L0, L1, L2, L3 to the IP-network, connecting each interface unit IF0, IF1, IF2, IF3 to a respective edge router ER0, ER1, ER2, ER3 of the IP network IP.

The use of a multiplier or a packet splitter at or in each interface unit IF0, IF1, IF2, IF3 of the media gateway MG means that only a respective common connection L0, L1, L2, L3 is required to connect both the active and also the inactive halves of the media gateway MG to the IP network IP. Packet splitters are used to

Claims

1. Method for the fail-safe interfacing of a network element (MG) comprising at least one packet-switching component (ES0, ES1) which is configured in an at least doubly redundant manner with a packet-switching communication network (IP),
   - according to which at least two packet splitters (IF0, IF1, IF2, IF3) are coupled to a respective component (ER0, ER1, ER2, ER3) of the communication network IP via one respective connection (L0, L1, L2, L3) and to the redundant components (ES0, ES1) of the network element (MG) via one respective connection
   - whereby a first (ES0) of the redundantly configured components (ES0, ES1) is active and serves to switch payload data, and all other (ES1) redundantly configured components (ES0, ES1) operate in standby mode and do not switch payload data,
   - whereby the packet data is routed to the respective active component (ES0) by the packet splitters (IF0, IF1, IF2, IF3) in the transmission direction from the packet-switching communication network (IP) to the network element (MG)
   - whereby the packet data from the respectively active component (ES0) is received by the packet splitters (IF0, IF1, IF2, IF3) in the transmission direction from the network element (MG) to the communication network (IP) and routed to the communication network (IP).

2. Method according to Claim 1,
   characterized in that
   the packet data is multiplied by the packet splitters (IF0, IF1, IF2, IF3) in the transmission direction from the communication network (IP) to the network element (MG) and is additionally forwarded to all components operating in standby mode (ES1), whereby the components operating in standby mode (ES1) reject the traffic.

3. Method according to one of Claims 1 or 2

characterized in that
packet data also from the components operating in standby mode (ES0, ES1) is received by the packet splitters (IF0, IF1, IF2, IF3) in the transmission direction from the network element (MG) to the communication network (IP) and is forwarded to the communication network (IP).

4. Method according to one of Claims 1 to 3
characterized in that
if a packet splitter (IF0 IF1, IF2, IF3) or a connection (L0, L1, L2, L3) or a component (ER0, ER1, ER2, ER3) of the communication network (IP) fails, the traffic transported via the connection (L0, L1, L2, L3) affected by said failure is rerouted to the unaffected connections (L0, L1, L2, L3),
and
the connections (L0, L1, L2, L3) are tailored to the network element (MG), in that the capacity of the connections (L0, L1, L2, L3) is established such that if one of the connections (L0, L1, L2, L3) fails, the capacity of the remaining connections (L0, L1, L2, L3) is sufficient to transport all the traffic to be transported on the fail-safe interfacing.

5. Method according to one of Claims 1 to 4
characterized in that
- if the active first component (ES0) fails, the switching of payload data is moved to one of the other components (ES1), whereby this other component (ES1) becomes the active component

6. Method according to Claim 5
characterized in that
IP packets or Ethernet frames or Ethernet frames which contain IP packets are transported via the connections (L0, L1, L2, L3).

7. Network element (MG) having fail-safe interfacing with a packet-switching communication network (IP), having at least one packet-switching component (ES0, ES1) configured in an at least doubly redundant manner, comprising the following:

- a first active component (ES0) of the redundantly configured components (ES0, ES1), which serves to switch payload data, as well as other redundantly configured components (ES0, ES1) operating in standby mode (ES1), which do not switch payload data,
- at least two packet splitters (IF0, IF1, IF2, IF3) are coupled to a respective component (ER0, ER1, ER2, ER3) of the communication network IP via one respective connection (L0, L1, L2, L3) and to the redundant components (ES0, ES1) of the network element (MG) via one respective connection, whereby the packet splitters (IF0, IF1, IF2, IF3) have means for forwarding packet data to the respective active component (ES0) in the transmission direction from the packet-switching communication network (IP) to the network element (MG) and whereby the packet splitters (IF0, IF1, IF2, IF3) comprise further means for receiving packet data from the respective active component (ES0) in the transmission direction from the network element (MG) to the communication network (IP) and forwarding this packet data to the communication network (IP).

8. Network element (MG) according to Claim 7 comprising multipliers for traffic in the transmission direction from the communication network (IP) to the network element (IP) in addition to or integrated in the packet splitters (IF0, IF1, IF2, IF3).

9. Network element (MG) according to Claim 8 whereby the packet splitters (IF0, IF1, IF2, IF3) comprise means for connection to a packet-oriented communication network (IP) and the multipliers comprise means for multiplying IP-

packets or Ethernet frames or Ethernet frames containing IP packets.